

#### ABSTRACT OF THE DISCLOSURE

A method for preventing formation of photoresist scum. First, a substrate on which a dielectric layer is formed is provided. Next, a non-nitrogen anti-reflective layer is formed on the dielectric layer. Finally, a photoresist pattern layer is formed on the non-nitrogen anti-reflective layer. During the formation of the photoresist pattern layer, the non-nitrogen anti-reflective layer does not react with the photoresist pattern layer, thus not forming photoresist scum. This prevents undesired etching profile and critical dimension (CD) change due to presence of photoresist scum. The non-nitrogen anti-reflective layer can be silicon-rich oxide ( $\text{SiO}_x$ ) or hydrocarbon-containing silicon-rich oxide ( $\text{SiO}_x\text{C}_y\text{H}$ ).